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TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/LECTED DFTCE (OD/GOUS) CONCERNING A FILING UNDER 35 U.S.C. 371 INTERNATIONAL APPLICATION NO. PCT/FR00/01675 INTERNATIONAL APPLICATION NO. RECEIVER/DECODER APPLICANT(S) FOR DO/EC/US LAURES, A. et al. Applicant herewith submits to the United States Designated/Elected Office (DO/EC/US) the following items and other information: 1. A This is a PIRST submission of items concerning a filing under 35 U.S.C. 371. 2. This is a SECOND or SUBSECULENT submission of items concerning a filing under 35 U.S.C. 371. 3. This is an express request to begin national examination procedures (35 U.S.C. 371(j)). The submission must include litems (6), (6), (6) and (21) indicated below. 4. This is an express request to begin national examination procedures (35 U.S.C. 371(j)). The submission must include litems (6), (6), (6) and (21) indicated below. 4. This is an express request to begin national examination procedures (35 U.S.C. 371(j)). The submission must include litems (6), (6), (6) and (21) indicated below. 4. This is an express request to begin national examination procedures (35 U.S.C. 371(j)). The submission must include litems (6), (6), (6) and (21) indicated by the international Bureau. 4. This is an express request to begin national examination procedures (35 U.S.C. 371(j)). The submission must include litems (6), (6), (6) and (7) and procedure only in other procedures (35 U.S.C. 371(j)(2)). 4. This is a EIRST submission of items concerning a filing under 35 U.S.C. 371(j)(2)). 4. This is a EIRST submission of items and the procedure of the international Bureau. 4. This is a EIRST submission of items and the procedure of the international Bureau. 5. This is a EIRST submission of items and t	FORI (REV	M PTO	-1390 U.S DEPARTMENT (F COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER			
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INTERNATIONAL APPLICATION NO. INTERNATIONAL FILING DATE 1706/1999 1706/1					10/009231			
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5(*) A copy of the International Application as filed (35 U.S.C. 371(c)(2)). 1 is attached hereto (required only if not communicated by the International Bureau). 1 is attached hereto (required only if not communicated by the International Bureau). 2 is not required, as the application was filed in the United States Receiving Office (RO/US). 3 is not required, as the application as filed (35 U.S.C. 371(c)(2)). 3 is attached hereto. 4 is a lattached hereto. 5 is attached hereto. 5 is a lattached hereto. 5 is a lattached hereto. 6 is a lattached hereto. 7 is a lattached hereto. 8 is attached hereto. 9 is a lattached hereto. 1 is a lattached hereto. 1 is a lattached hereto. 1 is a lattached hereto. 2 is a lattached hereto. 2 is a lattached hereto. 3 is a lattached hereto. 4 is a lattached hereto.	4		The U.S. has been elected I	by the expiration of 19 months from the priori	ty date (Article 31).			
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21. The following fe	es are submitted:					C/	ALCULATIONS	PTC	USE ONLY
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Neither internation	nal preliminary exar	nination	fee (37 C.F.R. 1.482)						
nor international	Search Report not	1. 1.445 orenare	(a)(2)) paid to USPTÓ d by the EPO or JPO	\$10	MO 00				
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NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filled and granted to restore the application to pending status.									
SEND ALL CORRESPO	NDENCE TO:			H	11/	/			
				SIGNATURE	7	7			
NIXON & VANDERHYE 1100 North Glebe Road	P.C. 8 th Floor				V .				
Arlington, Virginia 22201									
Telephone: (703) 816-40				Stanley C.	Spooner				
				NAME					
27,393							December	17 1	2001
					ION NUMBE	R	Date	.,,	.001

10/009731 581 Rec'd PCT 17 DEC 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

LAURES, A. et al.

Atty. Ref.: 677-27

Serial No. unknown

Group:

Filed: December 17, 2001

Examiner:

For: METHOD OF IDENTIFIYING, WITH A USER DEVICE SUCH AS AN AUDIENCE-RATER, A TELEVISION CHANNEL SELECTED BY A DIGITAL

DECODER OR RECEIVER/DECODER

December 17, 2001

Assistant Commissioner for Patents Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

In order to place the above-identified application in better condition for examination, please amend the application as follows:

IN THE SPECIFICATION

Please substitute the following paragraphs in the specification for corresponding paragraphs previously presented. A copy of the amended specification paragraphs showing current revisions is attached.

Page 1, before the first line, insert as a separate paragraph:

This application is the U.S. national phase of international application PCT/FR00/01675 filed 16 June 2000, which designated the U.S.

IN THE CLAIMS

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

- 7. The identification method of claim 5, in which, in step c), a prefix is added to the message identifying the type of transition represented by the message, either a change in state or some other transition.
- 8. The identification method of claim 5, in which, in step c), the message includes at least one piece of information taken from the group comprising: a referenced from the subscriber holding the decoder; a reference identifying the decoder; rating verification data transmitted over the network and received by the decoder; time and date information; and a message number which is incremented each time a new message is produced by the decoder.

REMARKS

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page(s) is captioned "Version With

Markings To Show Changes Made."

Respectfully submitted,

NIXON & VANDERHYER.G.

Bv:

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

Page 1, before the first line, insert as a separate paragraph:

This application is the U.S. national phase of international application PCT/FR00/01675 filed 16 June 2000, which designated the U.S.

IN THE CLAIMS

- 7. The identification method of claim 5-or claim 6, in which, in step c), a prefix is added to the message identifying the type of transition represented by the message, either a change in state or some other transition.
- 8. The identification method of claim 5-or-claim 6, in which, in step c), the message includes at least one piece of information taken from the group comprising: a referenced from the subscriber holding the decoder; a reference identifying the decoder; rating verification data transmitted over the network and received by the decoder; time and date information; and a message number which is incremented each time a new message is produced by the decoder.

1 581 Rec'd PCT/77 17 DEC 2001

A METHOD OF ENABLING A USER DEVICE SUCH AS AN AUDIENCE-RATER TO IDENTIFY A TV CHANNEL SELECTED BY A DIGITAL DECODER OR RECEIVER/DECODER

The present invention relates to identifying TV channels selected by equipment such as a digital decoder (or a receiver/decoder) associated with a TV set or a video recorder.

The identification of a program, i.e. the medium conveying the pictures and the sounds, is particularly useful in the audience-rating field, i.e. when measuring audiences. For statistical purposes, it is essential to be able at all times to identify which channel, i.e. the entity that produced the content which is being conveyed by the program, corresponds to the program being watched (or recorded) at a given instant in the home where the inquiry is being performed.

Nevertheless, this application to audience rating is not limiting, and it will be understood that the invention could be used for other purposes, e.g. for displaying or storing (e.g. while recording) in the clear the program channel being watched at a given instant.

The decoder or receiver/decoder (often referred to as an integrated receiver-decoder "IRD") is generally in the form of a box connected to a digital TV broadcast network, whether broadcasting takes place by cable, by satellite, or by terrestrial transmission.

In addition to receiving, demodulating, and demultiplexing the signals it receives, the box also performs certain other functions that TV sets are not designed to perform, in particular controlling access to services (managing subscriptions, paying for viewing, etc.) and interfacing with a return channel going back to the manager of the network via a telephone line connected to the decoder.

The output of the decoder is connected to the TV set or to the video recorder by means of standard interfaces,

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and it is also connected to the telephone network for managing the return path.

When it is desired, for audience-rating purposes, to identify the channel viewed or recorded by the subscriber, a first solution consists in recognizing the carrier frequency (or communications channel) of the program selected by the decoder, and in identifying the channel from a correspondence table matching frequencies to channels and stored in the audience rater.

Nevertheless, that solution is quite difficult to implement since the information in the correspondence table is specific to a given network at a given instant. It is therefore necessary to prepare as many different tables as there are networks and, furthermore, to reprogram all of those tables each time there is a change in the frequency plan of the network, or each time new programs are added.

Furthermore, the technique which consists in analyzing the carrier frequency or the communications channel number is a technique that is insufficient in the context of digital TV since a plurality of different programs (or services) can be multiplexed on a common communications channel.

Another channel-identification technique consists in proceeding in deferred and indirect manner by recording samples of the sound and/or the picture of the television program delivered by the decoder, together with information identifying the time at which the sample was taken. This information is stored locally and subsequently transferred and analyzed at the computer center of the audience-rating operator, where the information is correlated with recordings made at the same instants of the programs on the various channels, so as to be able to identify the channel corresponding to the program in this manner.

That technique is not very intrusive so far as the decoder is concerned (it suffices to record the signal

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delivered by its video output), however it is extremely cumbersome to implement, it requires large amounts of computer power, and also needs local memory and frequent connection between the audience rater and its collecting Furthermore, 100% correlation is never obtained so there always remains a fraction of samples for which it is not possible to identify the channel being watched.

An object of the invention is to propose a method capable of identifying the channel selected by a digital decoder while avoiding all of the above drawbacks.

The procedure proposed by the invention consists in identifying the selected channel by analyzing within the decoder digital channel-identification information that accompanies the digital video signal, and in forwarding this channel-identification information over a computer link between the decoder and the audience rater so that the audience rater is informed by the decoder each time there is a change of channel.

To this end, the invention proposes identifying the television channel selected by the digital decoder and/or receiver/decoder by implementing the steps consisting in:

- a) taking from within the decoder digital data forming a channel identifier;
 - b) detecting a change in the selected channel;
- c) when a change is detected, producing a digital data message including the new channel identifier;
 - d) transmitting the message to the user device; and
- e) making use of the message within the user device, in particular for statistical purposes.

Steps a) to c) are implemented most advantageously by software means internal to the decoder, in particular incorporated in the general control software of the decoder or its access control module, where applicable.

Also very advantageously, step d) is implemented via a non-specific access port of the decoder, in particular a serial or parallel computer port, or by making a branch

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connection to the connector for a microcircuit or "smart" card.

It is also possible to detect a change in an access condition to the selected channel and, in step c), to produce an access message including an access condition indicator or a corresponding access condition transition indicator. Similarly, it is possible to detect a change of state in the decoder between active, standby, and off states, and in step c) to produce an access message including a state indicator or a corresponding change-of-state indicator.

The channel-identification signal of the invention which is issued by the digital decoder or receiver/decoder for use by the user device includes a digital data message having information representative of a transition that has occurred amongst transitions taken from the group comprising: a change in the channel selected by the decoder; a change in the state of the decoder amongst active, standby, and off states; and a change of access condition to the selected channel.

Advantageously, before the message, the signal also comprises a prefix identifying the type of transition represented by the message, i.e. a change of state or some other transition.

Most advantageously, when there is a change of channel, it includes a channel identifier corresponding to the newly selected channel. The channel identifier can include, in particular, data that encodes the program channel, data that is encodes the digital multiplex, and/or data that encodes the originating upstream transport network.

The message can also include at least one piece of information from the group comprising: a reference to the subscriber holding the decoder; a reference identifying the decoder; rating verification data transmitted by the network and received by the decoder; time and date stamping data; and a message number which is incremented

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on each occasion that a new message is produced by the decoder.

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A detailed implementation of the invention is described below, and naturally it is not limiting in any way.

In this example the implementation is performed entirely by software means, which makes it possible in particular to make use of preexisting decoders without having to take any action on them other than changing a particular piece of software referred to herein as the "audience-rating software". This audience-rating software can be changed at the same time as the general control software of the decoder is changed (essentially the software which controls access and the interface drivers), and can even be downloaded, e.g. via the telephone link with which the decoder is provided or via the broadcast network. The audience-rating software can also be incorporated systematically in all decoders and be activated only when required, with activation being possibly implemented merely by sending a signal remotely.

For communication with the audience rater, the rater can advantageously be connected to preexisting sockets of the decoder, such as a serial port or a parallel port (ports which are very rarely used simultaneously in practice by TV viewers), or even possibly via a "audio output" socket of the decoder, or as a branch connection to the microcircuit card connector.

In this way, there is no need to add additional hardware elements nor any need to add additional software for controlling added hardware elements.

Furthermore, the software of the invention can advantageously make use of standard computer interfaces, such as the application programming interfaces (API

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interfaces) that already exist in the general control software of the decoder.

Advantageously, the decoder communicates with the audience rater in one direction only.

In order to avoid disturbing or slowing down the operation of the decoder, it is desirable to ensure that the audience-rating software of the decoder never listens to the audience rater connected to the decoder. It is thus the audience-rating software itself that locally analyzes the signals produced within the decoder and, at its own initiative, formats messages for sending to the remote audience rater that is connected to the decoder.

The on-board audience-rating software inside the decoder is activated under two distinct circumstances:

- each time there is a change of channel or of access condition to the selected program (where "access condition" refers to programs to which access is conditional, such as programs that are encrypted or in the clear depending on the time of day, programs with subscriptions that allow a program to be viewed only at certain times and not at others, authorized pay-per-view, or indeed having rights that have expired, etc.); and

- when the decoder switches between active mode and standby mode (or off mode).

The audience-rating software serves mainly to extract from within the decoder information that is pertinent in terms of audience ratings, and to form a message containing this information for sending to the audience rater.

In both of the circumstances mentioned above, and using the standard API interfaces of the decoder, the audience-rating software sends a specific message over the communications interface selected for its connection with the audience rater.

These messages are of two types:

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- a first type, referred to below as "type 1", when changing channel or changing access condition to the channel: and
- a second type referred to below as "type 2" when changing to standby or when waking up the decoder (or when turning it off or on).

These messages are formatted in the manner described below.

10 Type 1 messages: audience-rating data

A type 1 message is sent every time there is a change of program or of access condition to a program, or optionally periodically even in the absence of any such change (e.g. once every minute).

The nominal length of this message is 52 bytes.

The message proper (the payload message) is preceded by a prefix comprising:

- a starting synchronization pattern or "tag" coded on 8 bytes and serving to show that the following message is a message for an audience rater (this tag is arbitrary, but constant); and
- a 1-byte message identifier specifying the type of message: in this case a type 1 message.

The message proper, following the prefix, serves to identify the channel and the access conditions that were operative at the instant in question. It is made up as follows:

- optionally subscriber reference information on 5 bytes to identify the beneficiary of a subscription or a service:
- optionally, a decoder reference on 8 bytes, to distinguish between different types of decoders and their software versions;
- optionally a "rating identifier" on 4 bytes: this 35 is a binary sequence that varies in arbitrary manner over time and that is transmitted over the digital TV broadcast network and that is received by the decoder

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which forwards it without change to the audience rater for purposes concerned with subsequent authentication when the data collected by the audience rater is actually used at the processing center (for example to verify that the audience raters are indeed connected to the decoders):

- a channel identifier on 12 bytes made up as follows (use is made here by way of example and without limiting character of the triplet "Service ID Transport stream ID + Network ID" of the DVB specification):
- 4 bytes encoding the program channel ("Service ID");
- 4 bytes encoding the digital multiplex, i.e. enabling the upstream transport carrier frequency to be identified ("Transport stream ID"); and
- 4 bytes optionally encoding the originating upstream transport network ("Network ID");
- a 1-byte program state word (see below), constituted by Boolean flags and indicating the following, for example:
- whether the channel is being broadcast in the clear or in encrypted form;
- which tuner (syntonizer) is originating the signals assuming the decoder possesses two tuners, No. 1 and No. 2:
 - whether sound is muted or not;
- whether the program is being picked up by the decoder or whether it comes from Peritel (SCART) socket No. 1 if the decoder has such a socket:
- whether the program is being picked up by the decoder or whether it comes from Peritel (SCART) socket No. 2 if the decoder has such a socket:
- whether the program is picked up by the
- decoder or by a locally generated menu; and - whether the program is being viewed in the clear (a non-encrypted program or a program that is

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encrypted and has been decoded), or whether the program is being viewed in encrypted form, which corresponds to a situation that should not be taken into account when establishing audience ratings;

- optionally time and date information on 4 bytes;
- a 1-byte message number: this value is incremented modulo 128 each time a new message is sent by the audience-rating software and serves to enable the audience rater to verify that the messages sent by the decoder are coming properly in succession; and
 - an 8-bit end pattern or "tag".

Type 2 messages: decoder activity

A type 2 message is sent each time there is a change in the state of the decoder. Assuming that the decoder has three different states (on, off, and standby), this corresponds to six possible transitions, and can therefore be encoded on 3 bits.

A type 2 message has a nominal length of 40 bytes and comprises the following data:

- a starting pattern or "tag" on 8 bytes;
- a message identifier on 1 byte specifying that this is a type 2 message;
- optionally the subscriber reference information on 5 bytes;
 - optionally the decoder reference on 8 bytes;
 - optionally the rating identifier on 4 bytes:
- the state of the decoder on 1 byte (only 3 bits being used) corresponding to all six possible transitions;
 - optionally time and date information on 4 bytes;
 - the message number on 1 byte; and
 - the end pattern or "tag" on 8 bytes.

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CLAIMS

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- 1/ A method enabling a user device such as an audience rater to identify a television channel selected by a digital decoder or receiver/decoder, the method being characterized in that it comprises implementing the following steps:
- a) taking from within the decoder digital data forming a channel identifier;
 - b) detecting a change in the selected channel;
- c) when a change is detected, producing a digital data message including the new channel identifier;
 - d) transmitting the message to the user device; and
- e) making use of the message within the user device, in particular for statistical purposes.
- 2/ The identification method of claim 1, in which steps a) to c) are implemented by software means internal to the decoder.
- 3/ The identification method of claim 2, in which the software means implementing steps a) to c) are incorporated in the general control software of the decoder or in its access control module, where applicable.
- 4/ The identification method of claim 1, in which step d) is implemented via a non-specific access port of the decoder, in particular a computer serial or parallel port, or in parallel on the microcircuit card connector.
- 5/ The identification method of claim 1, in which a change in an access condition to the selected channel is detected, and in step c), an access message is produced including an access condition indicator, or a corresponding access condition transition indicator.
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6/ The identification method of claim 1, in which a change of state of the decoder is also detected between the active, standby, and off states, and in step c), an access message is produced including a state indicator or a corresponding state transition indicator.

7/ The identification method of claim 5 or claim 6, in which, in step c), a prefix is added to the message identifying the type of transition represented by the message, either a change in state or some other transition

8/ The identification method of claim 5 or claim 6, in which, in step c), the message includes at least one piece of information taken from the group comprising: a reference for the subscriber holding the decoder; a reference identifying the decoder; rating verification data transmitted over the network and received by the decoder; time and date information; and a message number which is incremented each time a new message is produced by the decoder.

9/ The identification method of claim 1, in which the channel identifier taken in step a) includes data encoding the program channel, data encoding the digital multiplex, and/or data encoding the originating upstream transport network.

10/ A digital signal identifying the channel issued by a digital decoder or receiver/decoder to a user device such as an audience rater, the signal being characterized by a digital data message comprising information representative of a transition that has occurred amongst the transitions taken from the group comprising: a change of channel selected by the decoder; a change of decoder state amongst the active, standby, and off states; and a change of access condition to the selected channel.

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11/ The digital signal of claim 10, further comprising, before the message, a prefix identifying the type of transition represented by the message, either a change of state, or some other transition.

12/ The digital signal of claim 10, in which the message comprises, when there is a change of channel, a channel identifier corresponding to the newly selected channel.

13/ The digital signal of claim 12, in which the channel identifier includes data encoding the program channel, data encoding the digital multiplex and/or data encoding the originating upstream transport network.

14/ The digital signal of claim 10, in which the message further comprises at least one piece of information from the group comprising: a reference for the subscriber holding the decoder; a reference identifying the decoder; rating verification data transmitted by the network and received by the decoder; time and date data; and a message number which is incremented each time a new message is produced by the decoder.

Nixon & Vanderhye P.C. (10/99) (Domestic Non-Assigned/Foreign) Page 1

RULE 63 (37 C.F.R. 1.63) INVENTORS DECLARATION FOR PATENT APPLICATION IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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